

ASIATIC CHOLERA.

Tua res agitur, proximus cum paries ardet.



REPORT

OF

THE EFFECTS OF THE ACID FUMIGATION TRIED IN
SCOTLAND, DURING THE PREVALENCE
OF THE CHOLERA ;

TO WHICH ARE ADDED,

DIRECTIONS FOR CONDUCTING THE PROCESS OF
FUMIGATION.

THE Cholera has resumed its march through Europe with unabated malignity, and we have much reason to fear that our country will not be spared. I therefore feel it a duty incumbent upon me, to call attention again to the proceedings which I instituted, and to the facts which were in consequence ascertained, five years ago. It must indeed afford every philanthropist infinite satisfaction to know, that experiments were performed upon such a scale, in such a manner, and with such results, as will convince the most sceptical, that this Pestilence may be promptly counteracted, and for ever extinguished.

The experiments were made from the beginning of January to the end of November 1832. The cities, towns, and villages, or the localities in each, which were the scene of operations, are specified.

When not otherwise qualified, *fumigation* and *to fumigate*, here refer to the evolution of THE CHLORINE GAS ; and all words implying disease, to THE ASIATIC CHOLERA.

EDINBURGH—*Adam Street*. Here, 2d January 1832, occurred the first case; the patient collapsed twice or thrice, and was ultimately restored to health. The building is capacious, of six floors, with poor families on each. The fumigation was kept up during four weeks; no other case was detected in the immediate neighbourhood.

Parkside Street.—House of five floors, with families on each. The patient collapsed and recovered: the same means were used with the same result.

Nicolson Street, Reekie's Court.—An area surrounded with buildings densely inhabited, and containing the workshops of William Miller, Esq., type-founder to his Majesty. When the malady was approaching his premises, he ordered the chlorine gas to be raised in the open court. The common people resemble the ordinary medical practitioners, they will not deviate from their usual routine. Mr Miller left town; his workmen neglected the process; several of them, and of those in the adjacent houses, were seized; deaths ensued; the fumigation was resumed, and persevered in for about five weeks; during this time one person died;—the eradication was permanent.

Leith Street, Catherine Street, Union Place, Haddington Place, &c.—The whole of this range, extending from Edinburgh nearly half-way to Leith, was cleared almost as soon as contaminated. On 9th September, in a dwelling at the top of a very high and large building, 15, *Catherine Street*, a man exhibited very suspicious symptoms; the chlorine exhalation occupied his apartments instantly, and without intermission, while necessary. This patient in a short time returned to business; his numerous family received no injury. I advised that the tenement should be fumigated from below, and saw the operation begun; but returning in a few

days, I learned that it had not been continued; in a day or two more, several of the tenants or occupiers were seized, and three or four of them perished; now the fumigation did its duty; for which we are indebted to William Child, Esq., Senior Magistrate.

This is given as one instance out of many, proving that the fumigating of an upper floor protects only that part; but if the gas is disengaged from below, it soon diffuses itself throughout the building, removing the cause and the malady at the same time.

Union Place.—In No 16, a property belonging to the Commercial Bank, on 19th September, Mr George Thomson, gun-maker to his Majesty, died. His wife and two of his servants had the characteristic symptoms. The fumigation was vigorously carried on for several weeks. The three patients soon got well; this and the contiguous buildings remained intact.

High Street.—In October there were two deaths at the Netherbow, in a tenement forming the north boundary of a square of houses belonging to Messrs Oliver & Boyd, where they have the most extensive printing and bookbinding establishment in Scotland. These gentlemen had the building fumigated a long time from below, and also in the open court they kept a barrel from which the gas was incessantly ascending. The tenement here mentioned is of seven floors, and contains twenty-one or twenty-two poor families: one man, who fled out of it, died; the rest were preserved.

Shakspeare Square was infested; not a few deaths were reported. In the Theatre-Royal, which occupies its centre, immense volumes of chlorine gas were formed twice a-week: within eight days from the commencement of the fumigation, the Cholera bade this quarter a final adieu.

Grass-market and West-bow, probably the most populous district of our city, was considered the stronghold of the enemy; it had never wanted cases and deaths, from the month of February till about the middle of October, when L.14 were collected, with which were purchased tar barrels, common salt, and sulphuric acid. The houses were filled with the chlorine gas, and the barrels were burned in the open spaces during twelve or fourteen days. At the beginning of the fumigation one person died, and just when it had ended, two persons came hither unwell and died; thus the evil terminated. So that the Board, expending L.500 or L.600 per week, did not accomplish in nine months what the inhabitants effected in a few days at the expense of L.14!

Canongate, a vassal burgh, and large part of the ancient capital. Here the fumigations were equally successful; and also in *Canal Street* and *Rose Street*, where there was one case, but no death, after the process began.

Five miles east of Edinburgh is the town of MUSSELBURGH, containing between 7000 and 8000 inhabitants. From the beginning of the year, the disease committed great havock in that part of it called *Fisherrow*; about the middle of February, at the request of Henry Raeburn, Esq., of St Bernards, the fumigation was there set into full operation in the streets and lanes. The calamity was forthwith mitigated, and in less than a week extirpated.*

Portobello, almost a suburb of Edinburgh, populous, about a mile long, and half a mile broad. Here, towards the middle of February, in a dirty lane called Pipe Street, there were many sick, and in one afternoon seven deaths. The

* This burgh was rescued at the expense of L.21, the half of which was paid by Mr Raeburn.

fumigation was now resorted to, and continued in the open air, and within the houses, for three days ; the sick all recovered ; but after a cessation of nearly three weeks, the disease reappeared in different parts. Many of the inhabitants used the gas, each in his own house, and all of these enjoyed exemption. The fumigation was undertaken at the request, and partly I believe at the expense, of John Baxter, Esq., and this gentleman himself gave an admirable lesson. In a piece of ground behind his residence, and nearly in the centre of his property, which is of considerable extent, he kept the fumes of chlorine exhaling night and day, as long as the malady prevailed. Close by his gardens, there are the hovels of the lowest class, and a little farther off, there are very handsome streets ; in all this division never even one case occurred.

DUNFERMLINE, a royal burgh and chief town in the western part of Fife, situate on an extensive eminence, stretching from east to west, about 270 feet above the level of the sea, and containing from 8000 to 10,000 inhabitants, was attacked on 3d September ; the onset was fierce, after which the new cases varied in number from 10 to 18 daily, till the 23d October, when the chlorine gas fumigation was put into practice in all the streets, lanes, and avenues, within and round the town ; on the very first day, the number of new cases was reduced to 6, and in five days the plague was annihilated. Total number of cases from 3d September, 462 ; deaths 163.

One thing which occurred here merits notice : A gentleman who has a very numerous family, as soon as the disease threatened, had recourse to the acid fumigation. His house is part of a continuous line of buildings, and in the dwellings next his, on either side, there were deaths ; one morning at

his own door, he stood and counted thirteen different windows admitting light to apartments, in each of which there was one "Cholera corpse." He persisted in the use of the fumigation until the danger was over, and not one within his domicile ever suffered in the slightest degree.

Gorgie, a small village a little more than a mile west of Edinburgh, was attacked towards the end of September. Tar barrels were burned, but the disease went on, till towards the end of November. At this time there happened four deaths, and many persons had the symptoms of the first stage. John Cox, Esq., one of the members of our town-council, generously supplied common salt and sulphuric acid in abundance; a cloud of muriatic acid gas enveloped the village seven or eight successive days; there were no more deaths; the disease vanished.

These examples establish incontestably the power of fumigation, but besides, from the time of the experiment made in Fisherrow, the process was more or less employed throughout this country, and from this time also, if we reflect how widely the contamination was diffused, as shown by the number of places assailed, we shall find that in no nation of the world had this scourge been attended with so little fatality as in Scotland, nor can it be reasonably doubted, that this happy event was mainly to be ascribed to the system of fumigation.

May I trust, that at length truth and humanity will combine to deliver the world from this dreadful calamity?

JAMES SANDERS.

Edinburgh, 15, Duke Street,
October 1837.

* * * Directions for conducting the acid fumigations, with a view to the extinction of the Cholera:—such as they have been dictated and confirmed by repeated experiments.

FORMULA I.—FOR EXTRACTING THE CHLORINE GAS.—Four parts by weight, or eight parts by measure, common sea salt; one part deutoxyde of manganese, called in the shops manganese—mix these together with a stick or staff; add water to moisten the mixture thoroughly; then pour in strong sulphuric acid, commonly called oil of vitriol, and stir the mass with the staff. The steams will instantly fly up, and in like manner, from time to time, let the acid be added till the fuming shall have ceased, and let water also be added, if the mixture have become too consistent.

A common herring barrel, sawed through the middle, will make two excellent tubs; put the materials into them, and proceed as above directed; place one in each narrow lane or close, and let the inhabitants open their windows. In houses where the disease is, a common porter tumbler will do very well, and if the smell be distinctly perceived, that is enough to be kept up.

For each street, let one or more tubs, containing the salt and manganese mixed, be put upon a cart, along with a jar full of the oil of vitriol, and a man with a rod in his hand, and his back to the wind, and while he is pouring in the acid, and the steams are rising, let the cart move slowly along, just as carts do when streets are watered, *and at a cheaper rate than streets are watered, will cities be saved.*

FORMULA II.—FOR EXTRACTING MURIATIC ACID GAS.—Put common sea salt into any wooden or earthenware vessel, moisten the salt with water, and pour in the sulphuric acid, or oil of vitriol, and stir as long as the fumes are disengaged.

The above should be done in half hogsheads, or very large vessels, to be placed east, west, south, and north of cities, towns, and villages. If, indeed, one such vessel were kept with the fumes rising at each end of any village, the cholera would never enter it.

In a dwelling of one floor, let the fumigating mixture be placed on a window-sill, so that the fumes may be diffused through the apartments; in a house of more than one floor, let the mixture be placed below, so that the fumes may ascend.

For protection it is sufficient that the fumigation go on outside of the house in the open air.

The process should be persevered in, for 8, 10, or 14 days successively, according to the obstinacy or severity of the epidemic.

